

Dig in: Archaeology as a vehicle for improved wellbeing, and the recovery/ rehabilitation of military personnel and veterans

Paul Everill: Department of Archaeology, Anthropology, and Geography; University of Winchester, Winchester, Hampshire, SO22 4NR Paul.Everill@winchester.ac.uk

Richard Bennett: Breaking Ground Heritage, Hestercombe House, Cheddon Fitzpaine, Somerset, TA2 8LQ r.bennett@breakinggroundheritage.org.uk

Karen Burnell: School of Sport, Health, and Social Sciences, Solent University, Southampton, Hampshire, SO14 0YN karen.burnell@solent.ac.uk

Abstract

The process and discipline of archaeology has been used to support improved wellbeing among serving military personnel and veterans since 2011, when an initiative called ‘Operation Nightingale’ was established in the UK. Since then the number of opportunities for participants has increased enormously, and positive experience of the initiative led to some of its beneficiaries establishing new, veteran-led archaeological projects in 2015. This paper seeks to contextualise the current landscape of ‘rehabilitation archaeology’ for military personnel and veterans, and to present data from the largest service evaluation undertaken to date based on standardised psychological measures.

Introduction

Since 2011, archaeology has been employed as an innovative vehicle for military veterans and serving personnel recovering from traumatic experiences or adapting to life-changing physical injuries. Though a number of initiatives now exist, to date only two peer-reviewed publications (Nimenko & Simpson 2014; Finnegan 2016) have been produced concerning rehabilitation archaeology for veterans. These have been conducted by military medical professionals and are based on small convenience samples, but both indicate effectiveness in terms of wellbeing uplift for those participating. However, with greater numbers of veterans now participating in a range of archaeological projects there is a heightened need for more extensive, longitudinal data on the impact on wellbeing during and post-

excavation; as well as rigorous evaluation of potential risks. The pre-eminence, in the current environment, of informal observation and non-systematic data obscures a full understanding of “if, how and why” archaeology is effective; and whether different individuals, with unique requirements and experiences, respond better or worse to different projects or settings. There is also a need to position the discipline of archaeology as not simply providing the backdrop for a group activity, but as having some ownership of it – particularly with regard to supervision of fieldwork, and stewardship of the historic environment. While there are many examples of high-quality archaeological work being undertaken through these initiatives, including via developer-funded investigations (for example Osgood & McCulloch 2018; Figure 1), this along with the suitability of mental health support embedded within them should not be assumed.

Figure 1: Veterans excavating a Hessian Mercenary dugout with PCA at Barton Farm, Winchester in July 2018 © Harvey Mills

The authors of this paper, bridging the disciplines of archaeology and psychology, have three aims. Firstly, to consider the evolution of support for veterans and the emergence of veteran-focused archaeology. Secondly, to review the existing literature and, finally, to present results from the largest service evaluation undertaken to date. A service evaluation is a commonly-used tool in the assessment of psychological change in service users over time. Routine service evaluations utilise standardised measures, recognised as valid and reliable measures of psychological constructs, such as depression and anxiety. These measures make it possible to assess change between baseline, so that the existing health needs are understood, and end point, so that change can be calculated and demonstrated.

This paper focuses on the UK because veteran-focused archaeological initiatives began as a British phenomenon. However, it has inspired an international movement that has seen other programmes established, first for US veterans and now embedded elsewhere such as a scheme that has seen Georgian veterans excavating at Nokalakevi. The global interest in this therapeutic use of archaeology makes it increasingly important that the benefits and risks are better understood.

Background

The first efforts in the UK to provide support for old and injured soldiers saw the establishment of the Royal Hospital at Chelsea by Royal Warrant in 1681. King Charles II saw, in the plight of those “broken by age or war” (Ingham 2016: 33), an unfulfilled debt owed to those who had served their country. The First World War completely changed the landscape of charitable work. The sheer numbers who served, and the dependence on irregulars, were as unimaginable to previous generations as the scale of the losses and the new horrors of mechanised war. A proliferation of associations and federations appeared through which ex-servicemen sought to support each other, such as the Comrades of the Great War; the National Association of Discharged Sailors and Soldiers; the National Federation of Discharged and Demobilised Sailors and Soldiers; and the Officers' Association, which merged to form the Royal British Legion in 1921. The physical impact of the war was most evident in the large numbers of men who lost limbs, and the first branch of the Limbless Ex-Service Men's Association (LESMA) was formed in Glasgow a few years later, merging with other regional branches to form a national charity (BLESMA) in 1932. The Ex-Servicemen's Welfare Society, founded in 1919, represented a ground-breaking approach to mental healthcare with rehabilitation being promoted as an alternative to the Mental War Hospitals and civilian asylums that many of those suffering from ‘shell-shock’ faced. The society, now known as Combat Stress, created work programmes to help veterans retrain and support themselves at its first ‘recuperative home’ in Putney from 1920. The remainder of the 20th century saw the establishment of further charitable institutions and, crucially, the founding of the National Health Service in 1948.

By spring 2007, the British military had, for the first time in over a generation, seen four years of sustained deployment in two simultaneous, major conflicts. The social impact of the wars in Afghanistan and Iraq – including the numbers wounded and requiring treatment through the NHS, and the public repatriation of the fallen through the streets of Wootton Bassett from RAF Lyneham – contributed to a growing public awareness of the limitations in state provision. At the same time the concept of a “Military Covenant” (See Armed Forces Covenant; Ministry of Defence 2016), a formal recognition of the debt owed by civilian society to its military personnel, was gaining political traction through media coverage and

lobbying by the Royal British Legion (Ingham 2016: 2). By the end of 2007, Help for Heroes was founded and adopted a funding model that quickly capitalised on the growing public desire, given voice by several national newspapers, to ensure that current and former service personnel were fully supported in their recovery and transition.

Archaeology as a non-medical intervention

Previous generations of returning service personnel were advised not to talk about their traumatic experiences for fear of alarming their loved ones, and thus retained the damaging effects of these experiences into old age (Burnell *et al.* 2010; Burnell *et al.* 2017). Recently there has been a recognition of the importance of being able to talk through, and make sense of, those experiences and by far the most effective support networks include those with shared or similar experiences. Peer support, as a non-medical intervention, is thought to be a promising way to help veterans and can complement psychological intervention (Dalton *et al.* 2018). An important aspect of archaeological fieldwork could be the peer support it provides.

Developed by Sergeant Diarmaid Walshe VR, of the Royal Army Medical Corps - at the time attached to 1 Rifles - and Richard Osgood, Senior Historic Advisor to the MoD's Defence Infrastructure Organisation (Walshe 2013), Operation Nightingale was an innovative way of facilitating the recovery process for serving soldiers through exposure to archaeological field and post-excavation tasks. In September 2011, a group of serving soldiers from 1st Battalion, The Rifles, took part in excavations of material redeposited by badger activity at East Chisenbury Midden on Salisbury Plain, in the first iteration of the Operation Nightingale initiative, with Wessex Archaeology and English Heritage providing specialist support (Walshe *et al.* 2012). Shortly after Chisenbury, eight of the soldiers took part in excavations at East Wear Bay, Folkestone, as part of a community archaeology project directed by Keith Parfitt of Canterbury Archaeological Trust (Heritage Daily 2011).

The Defence Archaeology Group (DAG) was established the following year, with Phil Harding of Wessex Archaeology, Professor Simon James of the University of Leicester, and Surgeon Commodore Peter Buxton among those marking the occasion in the cabin of HMS Victory.

The DAG was formed by those already actively supporting Op Nightingale in order to help facilitate its work, but it was somewhat overtaken by events as the latter quickly established its own momentum. From 2011 to 2015, when its focus shifted to project management rather than participant recruitment, Op Nightingale provided places on a variety of projects, including further seasons at East Chisenbury Midden; at Barrow Clump in Wiltshire (Pitts 2012: 6; Figure 2), where it worked for three seasons; and the excavation of a crashed Spitfire in 2013 (Osgood 2014). Op Nightingale was recognised with a special award at the British Archaeological Awards in 2012, and won “Best Community Action Project” in the 2016 Historic England Angel Awards. However, perhaps one of its most significant achievements was to inspire some of its participants to establish new, veteran-led archaeological initiatives in 2015, namely Breaking Ground Heritage; Waterloo Uncovered; and American Veterans Archaeological Recovery.

Figure 2: Veterans excavating a 6th Century Anglo-Saxon grave at Barrow Clump, July 2018
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Breaking Ground Heritage (BGH) was founded by Richard Bennett, a former Troop Sergeant in the Royal Marines and co-author of the present paper, after first experiencing Op Nightingale as a participant in 2012 and then studying archaeology at the University of Exeter. With Op Nightingale now focussing on facilitating veteran-focused archaeological projects on the MoD estate, BGH often works in partnership with it, recruiting and looking after the participants and all things pertaining to them, such as on Op Nightingale’s return to East Chisenbury Midden in 2016 and 2017; and Barrow Clump in 2017 and 2018. This complementary arrangement enables the MoD to continue supporting veterans in a capacity that also maintains its estates. BGH, a Community Interest Company (C.I.C), also manages its own fieldwork off MoD land, including the excavation of a First World War tank and a section of the Hindenburg Line at Bullecourt, France (Figure 3). It has facilitated over 300 places on over 35 veteran-focused archaeological and heritage-based projects since 2015, and was highly commended by the judges of the 2018 Marsh Award for Community Archaeology.

Figure 3: A wounded-in-service veteran, who lost a leg due to an IED, carefully excavates the foot and boot of a British soldier from the Battle of Bullecourt in 1917 © Harvey Mills

Waterloo Uncovered was established in 2015 by Mark Evans and Charles Foinette, who studied archaeology together at University College London (1997-2001) before joining the Coldstream Guards as officers (Mark Evans *pers. comm.*). By 2015 Evans had retired from the army, after being diagnosed with PTSD, and had found his way back to archaeology through Op Nightingale. Foinette, still serving and now a Major, was involved in running the Coldstream Guards' Waterloo bicentenary celebrations – Waterloo, and the defence of Hougoumont Farm in particular, ranking highly in the regimental history. Initially intending to undertake a single season of excavation at Hougoumont Farm in 2015, with a team of archaeologists alongside injured serving personnel from the Coldstream Guards, the project proved so successful that it has returned to the site each summer since. Beginning with a relatively small team of 25 in 2015, by 2018 the project had nearly 150 participants, of which more than 60 were serving personnel and veterans, and to date has included participants from eleven countries. The project, supported by its key partner organisations - Centre for Battlefield Archaeology, Glasgow University; L — P : Archaeology; ORBit team, Department of Soil Management, Ghent University; University College Roosevelt, Utrecht University; Service Public de Wallonie - will continue to work at the battlefield for at least a decade and has begun to develop other initiatives, including a Battlefields Uncovered Summer School at Utrecht University, and courses on ethical metal-detecting and even creative writing.

American Veterans Archaeological Recovery (AVAR) began life as Operation Nightingale USA, inspired by the British initiative, before rebranding as AVAR in 2016. It was founded by Stephen Humphreys, a former US Air Force officer and history graduate. At the time of writing, Humphreys has recently completed a PhD in archaeology at Durham University. Following a small initial excavation in Yorkshire in summer 2016, a joint Operation Nightingale/ Operation Nightingale USA project, and subsequent investigation of a USAF World War Two airfield in Britain, and a French and Indian War fort in Pennsylvania, AVAR has developed a range of opportunities for participants. Working in conjunction with a number of partners has enabled it to offer supported places for veterans on excavations as

far apart as Beth She'arim in Israel (led by Haifa University) and a Shaker settlement in New York state (led by DigVentures). It will be partnering with the US National Park Service to undertake work at the battlefield of Saratoga in 2019 (Stephen Humphreys *pers. comm.*). To date about 75 veterans have participated on AVAR-supported projects, but it continues to grow, securing funding from National Geographic in 2018.

To support veterans who wished to take their interest in archaeology further, a University of Leicester initiative, established in 2012 by Professor Simon James and Deirdre O'Sullivan, offered discounts on distance-learning fees for wounded service personnel wishing to study archaeology. This was ground-breaking, and an important step forwards, however it did not provide quite the same benefits in terms of rehabilitation and transition as an immersive student experience. In 2016, the University of Winchester offered its first fee-waiver studentships in archaeology, with Help for Heroes acting as gatekeeper and providing functional skills training and access courses. Four individuals, three with some experience of archaeology via Breaking Ground Heritage and/ or Waterloo Uncovered, enrolled at the university as full-time students in September that year. Their commitment to, and enthusiasm for, studying at this level has certainly overcome their own initial perception that Higher Education was out of reach, and it is hoped that this initiative can be replicated at other universities.

Existing literature

The study of social and peer support as a psychosocial intervention in the treatment of PTSD (Burnell *et al.* 2006; Caddick *et al.* 2015a), and the role of outdoor, physical pursuits in improving wellbeing among veterans (for example: Caddick & Smith 2014; Caddick *et al.* 2015b; Poulton 2015; Hawkins 2016), are becoming established in academic literature. The individual narratives in Burnell *et al.* (2010), which span several decades, suggest that service personnel who witness psychologically traumatic events may seek to protect their family and friends by not discussing them, yet sharing experiences can support the processing of traumatic memories. Ideally, veterans would use naturally existing support networks to facilitate this change, but reality is somewhat different and peer support as a more formalised intervention can support recovery. Until now, a specific archaeological

setting for such support has only been assessed by military medical practitioners, with only two peer-reviewed publications currently available. In light of the scarcity of rigorous data, anecdotal evidence has become pre-eminent and often remains unchallenged. From an archaeological perspective, the “Invisible Diggers” surveys of British professional archaeologists (Everill 2012) highlight the key importance of camaraderie in the retention of staff, alongside enjoyment of the process and physical engagement with archaeological remains. Where archaeological fieldwork has been utilised as a general therapeutic intervention (Sayer 2015), the scales used to measure outcomes appear to be modified meaning they are no longer valid scales of measurement, and conclusions are weakened consequently.

The first Op Nightingale excavations at Chisenbury Midden in 2011 were focussed on serving soldiers with the assistance of professional archaeologists, supported by the Rear Operations Group Civilian Medical Practitioner and Combat Medical Technician. The project was assessed for its contribution to psychological decompression and effectiveness in helping soldiers return to operational roles (Nimenko & Simpson 2014). Although the fieldwork is not referred to as Op Nightingale by the authors, they note that the exercise led to the formation of the Defence Archaeology Group (DAG) shortly afterwards and it is clear from contemporary media reports that the initiative had adopted the name by this point. The authors assessed 24 soldiers over the course of two, five day excavations, measuring change on five scales to assess depression, generalised anxiety disorder, impaired social functioning, alcohol use disorders, and PTSD (Nimenko & Simpson 2014: 296). The authors conclude that, despite the small sample size and the lack of a longitudinal element, the results indicated a positive reaction to the experience. They state that “the exercise helped isolated and distressed battle injured soldiers return to effective operational roles within the regiment” (Nimenko & Simpson 2014: 297).

Finnegan (2016) conducted semi-structured interviews with a convenience sample of 14 veterans who were participating in what are described, interchangeably, as “DAG” or “Operation Nightingale” excavations in April and August 2015. He reported improved self-esteem, confidence, and motivation to seek help among his study group. In terms of the value of archaeology to this process the author notes that “veterans may identify more

strongly with outdoor activities that involve physical challenge, camaraderie and achievement of an objective” (Finnegan 2016: 16). However, he makes an assertion, which also appears in some of the earlier media reports relating to Operation Nightingale, that there is a “close correlation between the skills required by the modern soldier and those of the professional archaeologist [...including...] scrutiny of the ground” (Finnegan 2016: 16). Aspects of military training can undoubtedly prove beneficial to archaeological tasks (from specialist survey techniques, through logistics and site management, to the simple preparedness to work hard within a team in all weather), but the notion that it, in itself, prepares an individual to read an archaeological site represents an over-simplification that has become entangled with the very concept of “rehabilitation archaeology”. Powers of observation, crucial to an archaeologist and potentially life-saving to a soldier, do not in themselves reveal the story of a site’s formation.

While the limited existing literature demonstrates a positive response to archaeological fieldwork, with 95% of Breaking Ground Heritage beneficiaries disclosing mental health needs, and reporting concerns including ‘self-imposed isolation’ and ‘burdensomeness’, it is clearly crucial to understand how and why involvement in “rehabilitation archaeology” is helping to break down those negative feelings. In addition, in light of the dominance of non-archaeological perspectives on these initiatives, it becomes increasingly important that archaeology is properly represented in future studies or it risks becoming simply a backdrop; just another ‘outdoor activity’, without proper recognition of the ethical imperative to do it properly.

Methods

As part of a routine service evaluation, data were collected from 40 individuals before and after participation on three BGH projects over the summer of 2018. Each participant was on the project for a minimum of seven days to a maximum of three weeks. Three validated scales were used to measure dimensions of mental health, generating a robust psychological dataset. These measures were the Patient Health Questionnaire – 8 to measure depression (PHQ-8; Kroenke *et al.* 2008); the Generalised Anxiety Disorder – 7

(GAD-7; Spitzer *et al.* 2006) to measure anxiety; and the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant *et al.*, 2007) to measure mental wellbeing.

BGH developed and used its own simple scales to record self-declared feelings of isolation and value among participants before and after the projects. These were based on the work of Castro and Kintzle (2014) and their “interpersonal-psychological theory of suicides in the military community” which suggested that the increasing suicide rate among US veterans was a result of the interplay between two psychological phenomena and an acquired ability to enact lethal self-harm. The two phenomena are a high sense of not belonging, of isolation, and a strong perception that an individual is a burden to others. It is not possible to prevent military veterans being able to enact lethal self-harm, yet interventions can and should focus on increasing a sense of belonging while reducing feelings of isolation and being a burden to others. Indeed, monitoring these feelings is an important aspect of risk assessment too. While these measures are not validated, they do provide further contextual information.

Results

Depression: PHQ-8

The PHQ-8 measures depressive symptom severity and comprises eight items scored on a scale of 0-3, with total scores of 0 to 24. It provides a classification of depressive symptoms from none-minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), to severe (20-27). Table 1 demonstrates that pre-project, there were a total of 22 people who reported moderate to severe depressive symptoms, while 14 scored within the none-minimal to mild categories. Post-project, only 12 scored within moderate to severe categories, and 24 scored within the none-minimal to mild categories. This demonstrates a reduction in severity of depressive symptoms.

Table 1. Pre- and post-project category frequencies for PHQ-8

Depression Symptom Severity	Frequency pre-project	Frequency post-project
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None-minimal	6	11
Mild	8	13
Moderate	7	5
Moderately severe	9	6
Severe	6	1
<i>Total sample</i>	<i>36</i>	<i>36</i>

A paired samples t-test was conducted to compare mean depression symptom severity scores pre- and post-project. There was a significant improvement in the scores pre-project ($M = 12.3$, $SD = 6.70$) to post-project ($M = 8.38$, $SD = 5.64$); $t(35) = -3.63$, $p < .001$.

Anxiety: GAD-7

The GAD-7 measures anxiety symptom severity and comprises seven items. These items are scored on a scale of 0-3, with total scores of 0 to 21. It provides a classification of anxiety symptoms from none-minimal (0-4), mild (5-9), moderate (10-14), and severe (15-21). Table 2 demonstrates that pre-project there were a total of 22 people who reported moderate to severe anxiety symptoms, while 14 scored within the none-minimal to mild categories. Post-project, only ten scored within moderate to severe symptoms, and 26 scored within the none-minimal to mild categories, demonstrating a decrease in severity of anxiety symptoms.

Table 2. Pre- and post-project category frequencies for GAD-7

Anxiety Symptom Severity	Frequency pre-project	Frequency post-project
None-minimal	4	13
Mild	10	13
Moderate	11	6
Severe	11	4
<i>Total sample</i>	<i>36</i>	<i>36</i>

A paired samples t-test was conducted to compare mean anxiety symptom severity scores pre- and post-project. There was a significant improvement in the scores pre-project (M = 11.14, SD = 5.10) to post-project (M = 7.02, SD = 4.90); $t(35)=-5.58$, $p<.001$.

Mental Wellbeing (WEMWBS)

Wellbeing is at the centre of what BGH tries to promote, and without improvements it becomes harder to reduce levels of anxiety and depression. The WEMWBS is measured on a scale of 1-5 over 14 items, giving a minimum score of 14 and maximum of 70, with a higher score indicating higher mental wellbeing. A paired samples t-test was conducted to compare mean WEMWBS scores pre- and post-project. There was a significant improvement in the mean scores pre-project (M = 37.56, SD = 9.74) to post-project (M = 48.44, SD = 10.66); $t(35)=-3.63$, $p<.001$. Interestingly, the mean post score is approaching the mean score for the general population (M = 51).

Findings from BGH-developed measures

BGH measured feelings of isolation and sense of value as part of a questionnaire assessing changes in overall wellbeing, confidence, employability prospects, as well as feelings of isolation and loneliness. Isolation is scored on a 5 point scale where 0 = not at all isolated and 4 = always isolated, while value is scored on a 5 point scale where 0 = always valued and 4 = not at all valued; as such higher scores indicate greater feelings of isolation and lower levels of feelings valued. Table 3 demonstrates a general trend towards a decrease in feelings of isolation most of the time/always from 16 reports pre-project to 3 post-project. Feelings of being valued seem to also improve with reports of most of the time/always feeling valued changing from 10 pre-project to 15 post-project.

Table 3. Pre- and post-project category frequencies for Isolation and Value

	Feelings of isolation		Feelings of being valued	
Category	Frequency pre-project	Frequency post-project	Frequency pre-project	Frequency post-project
Not at all	4	7	8	2

Occasionally	11	15	9	10
Sometimes	9	15	11	11
Most of the time	15	2	7	10
Always	1	1	3	5
<i>Total sample</i>	<i>40</i>	<i>40</i>	<i>38</i>	<i>38</i>

Discussion and Director's Reflections

The findings demonstrate decreases in severity of depressive and anxiety symptoms as well as isolation, while mental wellbeing and feelings of being valued increase. At this stage, due to a lack of control group (similar individuals who do not join BGH projects), it is not known whether these changes are associated with BGH, archaeology, social support opportunities, or natural improvement over time. However, these changes resonate with the field observations of the BGH Director (co-author of the present paper) and enable reflection on the relationship between the results and those observations.

Depression seems to be very fluid in the WIS (wounded injured and sick) veteran population. The majority of WIS experience depression, along with periods of self-imposed isolation due to flare-ups, impacting on other areas such as self-worth and perceived value. This may explain why both symptoms of depression and feelings of isolation lessen, and perceived value increases. While BGH projects seem to lower depression, there are external factors that can increase feelings of depression; for instance, problems in family life, increased pain, and employment concerns.

Anxiety can create barriers to those who wishing to join BGH. Months can be invested in individuals by the project in order to reduce anxiety enough to visit a site yet, after that initial site visit, anxiety seems to dissipate. It is important to note that the post-project data were collected on the final day of a project. By this time, project participants reported feeling low and anxious, faced with their impending return to 'normal' life, and leaving the supporting environment of the project. It is particularly salient, therefore, that the changes in depression and anxiety are seen at all.

While positive change seems to take place during time at BGH, there are risk factors for participants and these need to be fully understood and, where possible, mitigated against to ensure that harmful situations are avoided. Alongside staff equipped with Mental Health First Aid training the presence of a Psychological Wellbeing Lead (recognised by the Health and Care Professions Council (HCPC) as qualified to work in this capacity) might make the difference between improving participants' wellbeing, or participants leaving the project having suffered setbacks in their recovery. At Bullecourt this proved a vital element in the success of the project. Anxiety attacks are a common occurrence on projects, and are recognised and mitigated through careful management by the BGH welfare team, as well as through peer support offered by other participants.

When leaving the project, participant testimonials (not to be mistaken with qualitative data) are collected. These too reflect the changes seen in the outcome measures. Prior feelings of isolation seem to have lessened. For instance, a testimonial from a project participant highlights that 'having isolated myself over the last few years....I am a step closer to joining the world again'. When asked why feelings of isolation reduce, the response is predominantly that the individual feels like they are back within a familiar environment with others who understand.

A sense of value is central to military service, and underpins Section, Troop, Company and Unit/Regiment cohesion. Leaving the services as a respected combatant or technician and subsequently becoming lost in a civilian world can have a profound effect. Participants on BGH projects seemed to feel that, due to injuries, poor mental health, addiction or lack of employment, they are not valued by society, yet this changes during the project. This is unlikely to relate to feeling valued as archaeological practitioners, given the limited experience many have. Consequently, it may reflect a sense of value that comes from being part of a cohesive team, contributing to over-arching project goals, or supporting those around them. For instance, one project participant testimonial states that 'the pride I now feel having achieved this feat with my new friends has given me greater confidence and belief in myself'.

It seems likely that the building block, the “community group”, is a key element. Beneficiaries have shared experiences of military life, from a distinctive vocabulary to banter and black humour. As one project participant indicates ‘it allows me to switch off from my own head, to talk to others going through similar experiences and generally be what I consider to be normal again’. The tribal nature and alpha-based social structures of the military world do carry with them their own risks, which might serve to exclude individuals or ‘outside’ groups. From observation, however, the mixed military and archaeological community participating on BGH projects seems to be inclusive and equal, regardless of time served, rank, arm of service or disability. The recurring phrase, “that was the first time I have told anyone that”, underscores both the great strength of the project community and efficacy of the peer support it engenders.

Longitudinal data and investigation of clinically significant change is still required. Despite this, the data presented here show evidence of a significant relationship between participation in archaeological fieldwork and improved wellbeing among veterans. Future research will utilise qualitative methods, to explore the ways in which BGH impacts on those involved, focusing on the role of peer support. It will also be important to determine the causal nature of this relationship through further rigorous evaluation.

Conclusion

Claims have been made for more than seven years that participation in archaeological fieldwork can improve wellbeing among military veterans. However, by far the bulk of the evidence offered in support of this has been anecdotal in nature, and susceptible to being misused to present a risk-free, good news story. There is a clear need for the disciplines of archaeology and psychology to engage critically with these initiatives; to properly assess the benefits and potential risks to those participating, and to the fragile historic environment; and to inform practice. This paper represents the first output of a new area of interdisciplinary study, bridging archaeology and psychology, that might for simplicity be referred to as ‘rehabilitation archaeology’ or ‘wellbeing archaeology’. However, the implications are even more significant. The demonstrable capacity for archaeological fieldwork to improve wellbeing in participants need not be limited to specific groups, and

might even explain the wider appeal of the discipline's defining characteristic. Far more data are required to fully understand the mechanisms at play here, and this is particularly true of the effect on those with mental health issues. The veteran-led initiatives outlined in this paper also recognise the need to establish a rigorous dataset that can help protect the vulnerable, and ensure the best possible outcomes. In 2018 key stakeholders - representatives from organisations including the Ministry of Defence, Defence Archaeology Group, National Trust, Breaking Ground Heritage, National Health Service, Council for British Archaeology, Step Together, BAJR, ClfA, and the Universities of Cardiff, Solent and Winchester - met to start drawing up a set of best practice guidelines for veteran-focussed archaeology. Clearly this is a welcome and important step, which will likely formalise requirements for appropriate, qualified, mental health support to be in place, and produce a list of potential risk factors to address alongside strategies for maximising positive outcomes. However, in order to ensure the most effective wellbeing uplift for participants there remains a need to better understand how and why archaeology can help; for whom; and for how long. The data presented here is, to date, the largest study of its kind to be published, but this is simply the first step on which can be built longitudinal and qualitative approaches. Measurable improvements in wellbeing, including reduction in the occurrence of anxiety, depression, and isolation and a greater sense of being valued after participation on Breaking Ground Heritage projects are particularly noteworthy. Future data collection and analysis will shed further light on the longevity of these improvements following participation, as well as helping to identify which sites and projects are the most effective.

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References

BURNELL K., P. COLEMAN & N. HUNT. 2006. Falklands War veterans' perceptions of social support and the reconciliation of traumatic memories. *Ageing and Mental Health* 10 (3): 282-289.

BURNELL, K., P. COLEMAN & N. HUNT. 2010. Coping with traumatic memories: Second World War veterans' experiences of social support in relation to the narrative coherence of war memories, *Ageing and Society* 30: 57-78.

BURNELL, K., J. CROSSLAND & N. GREENBERG. 2017. The Health and Social Care of Older Veterans in the UK: Raising Awareness of Needs in Later Life. In Hacker-Hughes, J. (ed.) *Military Veteran Psychological Health and Social Care: Contemporary Issues*. Abingdon: Routledge.

CADDICK, N. & B. SMITH. 2014. The impact of sport and physical activity on the well-being of combat veterans: a systematic review. *Psychology of Sport and Exercise* 15: 9-18.

CADDICK, N., C. PHOENIX & B. SMITH. 2015a. Collective stories and well-being: Using a dialogical narrative approach to understand peer relationships among combat veterans experiencing PTSD. *Journal of Health Psychology* 20: 286-299.

CADDICK, N., B. SMITH & C. PHOENIX. 2015b. The effects of surfing and the natural environment on the wellbeing of combat veterans. *Qualitative Health Research* 25(1): 76-86.

CASTRO, C. & S. KINTZLE. 2014. Suicides in the military: the post-modern combat veteran and the Hemingway effect. *Current Psychiatry Reports* 16: 460.

DALTON, J., S. THOMAS, H. MELTON, M. HARDEN & A. EASTWOOD. 2018. The provision of services in the UK for UK armed forces veterans with PTSD: a rapid evidence synthesis. *Health Services and Delivery Research* 6(11): 1–112.

doi:10.3310/hsdr06110

EVERILL, P. 2012. *The Invisible Diggers: a study of commercial archaeology in the UK* (2nd Edition). Oxford: Oxbow.

FINNEGAN, A. 2016. The biopsychosocial benefits and shortfalls armed forces veterans engaged in archaeological activities. *Nurse Education Today* 47: 15-22.

HAWKINS, B., J. TOWNSEND & B. GARETH. 2016. Nature-based recreational therapy for military service members. *Therapeutic Recreation Journal* 1 (1): 55-74.

INGHAM, S. 2016. *The Military Covenant: Its impact on civil-military relations in Britain*. London: Routledge.

Heritage Daily. 2011 *Army's Operation Nightingale comes to Folkestone*
<http://www.heritagedaily.com/2011/11/armys-operation-nightingale-comes-to-folkestone/14520> (accessed 8 March 2019)

KROENKE, K., T. W. STRINE, R. L. SPITZER, J. B. W. WILLIAMS, JK. T. BERRY & A. H. MONDADORI. 2008. The PHQ-8 as a measure of current depression in the general population, *Journal of affective Disorders*, 114(1-3), 163-73. doi:10.1016/j.jad.2008.06.026

Ministry of Defence. 2016. *The Armed Forces Covenant*.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/578212/20161215-The-Armed-Forces-Covenant.pdf (accessed 18 February 2019).

NIMENKO, W. & R.G. SIMPSON. 2014. Rear Operations Group medicine: a pilot study of psychological decompression in a Rear Operations Group during Operation HERRICK 14. *Journal of the Royal Army Medical Corps* 160: 295-297.

OSGOOD, R. 2014. Recovering Spitfire P9503: Exercise Tally Ho! *British Archaeology* 136: 30-35.

OSGOOD, R. & P. McCULLOCH. 2018. The Hessians of Barton Farm: Uncovering when a German army defended Britain. *Current Archaeology* 345

PITTS, M. 2012. News: Find adds to Anglo-Saxon grave mystery. *British Archaeology* 126: 6.

POULTON, D.V. 2015. How war veterans with post-traumatic stress disorder experience nature-based therapy in a forest therapy garden. Unpublished PhD dissertation, University of Copenhagen.

SAYER, F. 2015. Can digging make you happy? Archaeological excavations, happiness and heritage. *Arts & Health* 7(3): 247-260.

SPITZER R.L., K. KROENKE, J.B.W. WILLIAMS & B. LÖWE. 2006. A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine* 166 (10), 1092-1097: 1092–7. doi:10.1001/archinte.166.10.1092

TENNANT, R., L. HILLER, R. FISHWICK, S. PLATT, S. JOSEPH, S. WEICH, J. PARKINSON, J. SECKER & S. STEWART-BROWN. 2007. The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes* 5 (63). doi:10.1186/1477-7525-5-63.

WALSHE, D. 2013. Time heals: Digging Caerwent with Operation Nightingale. *Current Archaeology* 282.

WALSHE, D., R. OSGOOD & M. BROWN. 2012. Archaeology as rehabilitation. *British Archaeology* 122: 38-43.